

IN THE CLAIMS

1. (Currently Amended) A method of detecting data synchronization comprising:

~~storing an identified~~ a discriminated bit string
output of code-modulated reproduced data;

detecting an occurrence of a specified bit pattern
in every bit phase of every period of bits in a bit string of
the discriminated bit string;

counting a number of the occurrences of the
specified bit pattern in every bit phase ~~counting the number~~
~~of occurrences of a specified bit pattern in a bit sequence of~~
~~the identified output of the reproduced data, in an arbitrary~~
~~bit period;~~

discriminating original codeword boundaries of said
discriminated bit string output of ~~identifying codeword~~
~~partitions of said~~ code-modulated reproduced data based on
the number of occurrences of the specified bit pattern; and

outputting said stored ~~identified output~~
discriminated bit string in synchronization with said

~~identified codeword partitions~~ discriminated original codeword boundaries.

2. (Currently Amended) The method of detecting data synchronization according to claim 1, further comprising:

finding the correlation of a front section of the ~~identified~~ discriminated bit string output of the axle-modulated reproduced data and a phase locked oscillator synchronization pattern; and

specifying a position of a data portion based on the correlation thus found.

3. (Currently Amended) The method of detecting data synchronization according to claim 1, further comprising:

finding the correlation of a rear section of the discriminated bit string ~~identified~~ output of said code-modulated reproduced data and a GAP pattern for correctly reproducing the final bit of said reproduced data; and

specifying the position of a data portion based on the correlation thus found.

4. (Currently Amended) The method of detecting data synchronization according to claim 1, further comprising:

finding, for a data position detection pattern provided at an intermediate position in the data, the correlation of an intermediate portion of the discriminated bit string identified output of code-modulated reproduced data and a data position detection pattern; and

specifying the position of a data portion based on the correlation thus found.

5. (Currently Amended) The method of detecting data synchronization according to claim 1, further comprising selecting reproduced data used for data synchronization detection, or reproduced data used for position detection of a data portion, by means of a data quality signal representing the probability that there is an error in the discriminated bit string identified output of the reproduced data.

6. (Canceled).

7. (Currently Amended) A method of recording information comprising:

a step for scrambling data by two or more types of scrambler;

a step for code-modulating the scrambled data;

a step for counting ~~a~~the number of occurrences of a specified bit pattern in every bit phase of every period of bits in a discriminated bit string output of reproduced data ~~a bit sequence of the code-modulated data, in an arbitrary bit period;~~

a step for determining whether or not the position of a code-modulation codeword ~~partition~~boundary of the data can be specified by a prescribed threshold value of the number of occurrences of the specified bit pattern; and

a step for recording data obtained by code-modulation of data scrambled by the scrambler which has been determined to be configured for specifying the position of the code-modulation codeword boundary~~partition~~.

8. (Currently Amended) The method of recording information according to claim 7, further comprising a step

for recording the information of the scrambler which has been determined to be configured for specifying the position of the code-modulation codeword boundarypartition.

9. (Original) A method of reproducing information comprising:

detecting data synchronization using the data synchronization detection method according to claim 1;

code-demodulating the data in accordance with a specified code modulation phase;

descrambling the code-demodulated data with two or more types of descrambler;

detecting error in respect of the descrambled data;
and

outputting as reproduced data the output data of the descrambler for which the number of detected errors is smallest.

10. (Original) A method of reproducing information using the output data of a descrambler as reproduced data, comprising:

inputting reproduced data including descrambler information;

detecting data synchronization, using the data synchronization detection method according to claim 1;

code-demodulating data in accordance with a specified code-modulation phase;

error-correcting the code-demodulated data; and

descrambling in accordance with scrambling information included in the error-corrected data.